CATALOG DOCUMENTATION
NATIONAL COASTAL ASSESSMENT- NORTHEAST DATABASE
YEAR 2000 STATIONS
BENTHIC TAXON ABUNDANCE DATA: "BEN_ABUN"

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1. DATASET IDENTIFICATION

1.1 Title of Catalog document
National Coastal Assessment-Northeast Region Database
Year 2000 Stations
Benthic Taxon Abundance Data

1.2 Authors of the Catalog entry
John Kiddon, U.S. EPA NHEERL-AED
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1.3 Catalog revision date
December 29, 2003

1.4 Dataset name
BEN_ABUN

1.5 Task Group
National Coastal Assessment-Northeast

1.6 Dataset identification code
008

1.7 Version
001

1.8 Request for Acknowledgment
EMAP requests that all individuals who download EMAP data acknowledge the source of these data in any reports, papers, or presentations. If you publish these data, please include a statement similar to: "Some or all of the data described in this article were produced by the U. S. Environmental

Protection Agency through its Environmental Monitoring and Assessment Program (EMAP)".

2. INVESTIGATOR INFORMATION (for full addresses see Section 13)

2.1 Principal Investigators

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2.2 Sample Collection Investigators

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2.3 Sample Processing Investigators

Not Applicable

3. DATASET ABSTRACT

3.1 Abstract of the Dataset

The BEN_ABUN file reports the identity and abundance of benthic species found in grab samples collected in NCA Estuaries in the Northeast Region in the year 2000. One record is presented for each taxon per grab at a station. Each record includes the taxonomic name of the organism; the abundance of each taxa per grab; the taxonomic level represented by the record, (species, genus, family, etc); and the size of grab sampler used to collect the sediment. The lookup table BEN_TAX presents the common and scientific names and other information about each taxa.

3.2 Keywords for the Dataset

Benthic species, taxa, invertebrates, community composition, taxonomic identity,

4. OBJECTIVES AND INTRODUCTION

4.1 Program Objective

The National Coastal Assessment (NCA) is a national monitoring and assessment program with the primary goal of providing a consistent evaluation of the estuarine condition in U.S. estuaries. It is an initiative of the Environmental Monitoring and Assessment Program (EMAP), and is a partnership of several federal and state environmental agencies, including: EPA's Regions, Office of Research and Development, and Office of Water; state environmental protection agencies in the 24 marine coastal states and Puerto Rico; and the United States Geological Survey (USGS) and the National Oceanic and Atmospheric Agency (NOAA). The five-year NCA program was initiated in 2000, and is also known as the Coastal 2000 Program.

Stations were randomly selected using EMAP's probabilistic sampling framework and were sampled once during a summer index period (June to

October). A consistent suite of indicators was used to measure conditions in the water, sediment, and in benthic and fish communities. The measured data may be used by the states to meet their reporting requirements under the Clean Water Act, Section 305(b). The data will also be used to generate a series of national reports characterizing the condition of the Nation's estuaries.

4.2 Dataset Objective

The identity and abundance of the benthic organisms are reported for each grab sample collected.

4.3 Dataset Background Discussion

A two-year sampling design was employed for 2000-2001 NCA program in the Northeast. Analysts may therefore wish to consider the two years of data together.

This datafile provides the taxa name (LAT_NAME) and identification number (TSN) as provided by the contract laboratory performing the analysis. The TSN is a taxonomic serial number assigned by the Integrated Taxonomic Identification System or ITIS (http://www.itis.usda.gov/about_itis.html). Occasionally, differences are evident in the Latin names provided by the laboratory and those assigned by ITIS. Also, ITIS periodically updates its database of Latin names. Therefore, NCA maintains a datafile BEN_TAX, which is searchable by TSN code and lists the Latin name (TSN_NAME) believed to be most current and accurate. BEN_TAX also lists all available phylogenic information (regarding names for phylum, class, order, family, genus, and species) for a TSN code. When TSN codes are unavailable for a taxa, a temporary EMAP identification number (a five-digit number preceded by an "E"). BEN_TAX is available, along with other datafiles, at the summary database.

Different grab samplers were used by NCA partners as is designated by the parameter GRABSIZE. Young-modified Van Veen grab samplers, with a sampling area of 0.04 m2, were used by ST_COOP = CT, DE, MA, NH, RI, and ME in both 2000 and 2001. NJ-C and NJ-DB used either a Ponar sampler (0.04 m2) or a Smith McIntyre sampler (0.1 m2) at stations in both years. NY used either a Young-modified Van Veen grab samplers(0.04 m2) or a Smith McIntyre sampler (0.1 m2) in 2000. No benthic samples were reported for ST_COOP = NY in 2001.

4.4 Summary of Dataset Parameters

* denotes parameters that should be used as key fields when merging data files

*STATION	Station name
*STAT_ALT	Alternate Site Code (A, B, C)
*EVNTDATE	Event date
*LAT_NAME	Taxa Latin name
ABUNDANC	Number of organisms of a taxon found in a grab sample
ID_LEVEL	Taxonomic level of taxa (species, genus, family, etc.)
GRABSIZE	Size of benthic grab sampler (0.04 m2 or 0.1 m2)
TSN	ITIS taxonomic serial number
LABCODE	Laboratory performing analysis
	NAT BEN1 Contract lab: Barry Vitor Associates

5. DATA ACQUISITION AND PROCESSING METHODS

5.1 Data Acquisition / Field Sampling

The sample collection methods used by USEPA trained field crews will be described here. Any significant variations by NCA partners are noted in Section 5.1.12. Details regarding NCA partners are reported in the STATIONS data file.

5.1.1 Sampling Objective

Benthic grab samples were collected for the identification and enumeration of benthic organisms. Additional sediment sub-samples were collected for the analysis of sediment chemical constituents, sediment grain-size analyses, and toxicity testing.

5.1.2 Sample Collection: Methods Summary

One 'grab' sample was collected from each station using a Young-modified Van Veen grab sampler. The grabs were nominally 440 cm^2 in area and 10 cm deep. A sub-sample 2.5 cm in diameter and the depth of the grab was taken from each grab for grain-size analysis. The remaining sediments were live-sieved in the field with a 0.5 mm mesh screen. Organisms retained on the screen were placed in plastic containers and fixed in 10% buffered formalin with rose bengal stain for preservation.

5.1.3 Beginning Sampling Dates

7 July 2000

5.1.4 Ending Sampling Dates

20 October 2000

5.1.5 Sampling Platform

Samples were collected from gasoline or diesel powered boats, 18 to 133 feet in length.

5.1.6 Sampling Equipment

A 1/25 m2, stainless steel (coated with Kynar), Young-modified Van Veen grab sampler was used to collect sediments.

5.1.7 Manufacturer of Sampling Equipment

Young's Welding, Sandwich, MA

5.1.8 Key Variables

Not applicable

5.1.9 Sample Collection: Calibration

The sampling gear does not require any calibration, although it was inspected regularly for damage by mishandling or impact on rocky substrates.

5.1.10 Sample Collection: Quality Control

Care was taken to minimize disturbance to the sediment grabs. Grabs that were incomplete, slumped, less than 7 cm in depth, or comprised chiefly

of shelly substrates were discarded. The chance of sampling the same location was minimized by repositioning the boat (five meters downstream) after three sampling attempts.

5.1.11 Sample Collection: References

Strobel, C.J. 2000. Environmental Monitoring and Assessment Program: Coastal 2000 - Northeast component: field operations manual. Narragansett (RI): U.S. Environmental Protection Agency, National Health and Environmental Effects Research Laboratory, Atlantic Ecology Division. Report nr EPA/620/R-00/002. 68 p.

5.1.12 Sample Collection: Alternate Methods

Different grab samplers were used by NCA partners as is designated by the parameter GRABSIZE. Young-modified Van Veen grab samplers, with a sampling area of 0.04 m2, were used by ST_COOP = CT, DE, MA, NH, RI, and ME in both 2000 and 2001. NJ-C and NJ-DB used either a Ponar sampler (0.04 m2) or a Smith McIntyre sampler (0.1 m2) at stations in both years. NY used either a Young-modified Van Veen grab samplers(0.04 m2) or a Smith McIntyre sampler (0.1 m2) in 2000. No benthic samples were reported for ST_COOP = NY in 2001.

5.2 Data Preparation and Sample Processing

5.2.1 Sample Processing Objective

To identify and count all infaunal and epifaunal organisms present in benthic grab samples.

5.2.2 Sample Processing: Methods Summary

All taxa in a grab sample were sorted by a technician and then identified and counted by a skilled taxonomist. Only organisms larger than 0.5 mm were processed; therefore groups such as turbellarian flatworms, nematodes, ostracods, harpacticoid copepods and foraminifera were excluded from the identification process.

5.2.3 Sample Processing: Calibration

Not applicable

5.2.4 Sample Processing: Quality Control

A minimum of 10% of all samples sorted by each technician were resorted to monitor performance and provide feedback to maintain acceptable standards. Only skilled taxonomists conducted the organism identification. A minimum of 10% of samples were re-checked by other qualified taxonomists for accuracy in identification and enumeration. Species lists from different labs were cross-checked. Inconsistencies in nomenclature were corrected as necessary.

5.2.5 Sample Processing: References

U.S. EPA. 1995. Environmental Monitoring and Assessment Program (EMAP): Laboratory Methods Manual-Estuaries, Volume 1: Biological and Physical Analyses. Narragansett (RI): U.S. Environmental Protection Agency, Office of Research and Development, EPA/620/R-95/008.

5.2.6 Sample Processing: Alternate Methods
Not applicable

6. DATA ANALYSIS AND MANIPULATIONS

6.1 Name of New or Modified Values
Not applicable

6.2 Data Manipulation Description
Not applicable

7. DATA DESCRIPTION

7.1 Description of Parameters

7.1.1 Components of the Dataset

VARIABLE	TYPE	LENGTH	LABEL
STATION	Char	9	Coastal 2000 Station Name
STAT_ALT	Char	1	Alternate Site Code (A,B,C)
EVNTDATE	Date	8	Event Date
LAT_NAME	Char	40	Taxa Latin Name
ABUNDANC	Num	4	Taxa Abundance in sample
ID_LEVEL	Char	15	Taxonomic Level of Identification
GRABSIZE	Char	10	Size of Benthic Grab Sampler
TSN	Char	10	ITIS Taxonomic Serial Number
LABCODE	Char	7	Lab/Contract Identifier

7.1.2 Precision of Reported Values
Abundance counts are reported as whole numbers

7.1.3 Minimum Value in Dataset
ABUNDANC 0

7.1.4 Maximum Value in Dataset
ABUNDANC 5628

7.2 Data Record Example

STATION	STAT_ALT	EVNTDATE	LAT_NAME	ABUNDANC	ID_LEVEL	GRABSIZE	TSN	LABCODE
CT00-0001	A	8/17/00	Bivalvia	4	Class	0.04 sq. m	79118	NAT BEN1
CT00-0001	A	8/17/00	Cirratulidae	529	Family	0.04 sq. m	67116	NAT BEN1
CT00-0001	A	8/17/00	Corophium spp.	1	Genus			

0.04 sq. m 93589 NAT BEN1

8. GEOGRAPHIC AND SPATIAL INFORMATION

8.1 Minimum Longitude (Westernmost)
-75.7737 decimal degrees

8.2 Maximum Longitude (Easternmost)
-67.0939 decimal degrees

8.3 Minimum Latitude (Southernmost)
38.4521 decimal degrees

8.4 Maximum Latitude (Northernmost)
44.9456 decimal degrees

8.5 Name of area or region
The National Coastal Assessment Northeast Region covers the northeastern US coastline from Maine to Delaware.

9. QUALITY CONTROL AND QUALITY ASSURANCE

9.1 Measurement Quality Objectives
The measurement quality objectives of the EMAP-Estuaries program specifies that sorting, counting and identification procedures be accurate to within 10% (see U.S. EPA 2001).

9.2 Data Quality Assurance Procedures
A minimum of 10% of all samples processed were resorted by a second qualified technician. A minimum of 10% of all samples processed by each taxonomic technician was checked by a second senior taxonomist to verify the accuracy of species identification and enumeration.

9.3 Actual Measurement Quality :
Not applicable

10. DATA ACCESS

10.1 Data Access Procedures
Data can be downloaded from the web
http://www.epa.gov/emap/nca/html/regions/index.html

10.2 Data Access Restrictions
None

10.3 Data Access Contact Persons
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10.4 Dataset Format
ASCII (CSV) and SAS Export files

10.5 Information Concerning Anonymous FTP
Not available

10.6 Information Concerning WWW
No gopher access, see Section 10.1 for WWW access

10.7 EMAP CD-ROM Containing the Dataset
Data not available on CD-ROM

11. REFERENCES

Strobel, C.J. 2000. Environmental Monitoring and Assessment Program: Coastal 2000 - Northeast component: field operations manual. Narragansett (RI): U.S. Environmental Protection Agency, National Health and Environmental Effects Research Laboratory, Atlantic Ecology Division. EPA/620/R-00/002. 68 p.

U.S. EPA. 2001. National Coastal Assessment: Field Operations Manual. U.S. Environmental Protection Agency, Office of Research and Development, National Health and Environmental Effects Research Laboratory, Gulf Ecology Division, Gulf Breeze, FL. EPA/620/R-01/003. 72 p.

U.S. EPA. 2001. Environmental Monitoring and Assessment Program (EMAP): National Coastal Assessment Quality Assurance Project Plan 2001-2004. U.S. Environmental Protection Agency, Office of Research and Development, National Health and Environmental Effects Research Laboratory, Gulf Ecology Division, Gulf Breeze, FL. EPA/620/R-01/002. 189 p.

12. TABLE OF ACRONYMS

AED	Atlantic Ecology Division (USEPA)
DB	Delaware Bay
cm	Centimeter
EMAP	Environmental Monitoring and Assessment Program
EPA	U.S. Environmental Protection Agency
GED	Gulf Ecology Division (USEPA)
mm	Millimeter
m2	Square meter
USEPA	United States Environmental Protection Agency
WWW	World Wide Web

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